

CLAIMS

1.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, having automatic working and attachable to the die or die holder of a progressive die press or transfer press die amongst 5 others, characterised in that it has a body base (1) from which one or several parallel columns (3 and 4) can arise, there being an electrode (5 and 6) on at least one of the columns (3) with one pole connected to a welding electric current generator (not shown) and on at least one column 10 (4) a positioning device (12) for the small part (31) to be welded, the electrode (5 and 6) being introduced in said positioning device (12) for the compression of said part (31) to be welded onto the sheet (32) or lower part to be welded against a second electrode (28); and in that it 15 includes a spring or expansion element (11) in a rear position to the electrode rod (6) and coaxial with its movement axis, operationally suitable to exercise the compression force in the welding; and in that it includes an intermediary coupling part (19) between the positioning 20 device (12) and the column (4).

2.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, according to claim 1, characterised in that the electrode includes a body (5) with a through hole or housing guide of the column (3) in a sliding manner; and in that the body 25 (5) has an internal channel corresponding to a cooling liquid circuit (7) with its corresponding inlet and outlet (8); and in that the electrode body (5) has a rod (6) partially introduced into the positioning device (12) and

coaxially arranged with the expansion element (11), operationally suitable for penetration.

3.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, according to claims 1 and 2, is characterised in that the 5 electrode rod (6) has some openings or grooves (29) for air cooling..

4.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, according to claims 1 and 2, is characterised in that in an alternative embodiment the cooling of the rod is by liquid.

10 5.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, according to claims 1 and 2, is characterised in that the positioning device (12) is made up of an axial opening (13) for the passage of the rod (6), having a lower window (14) for the placement of the part to be welded (31) and a 15 side window (15) for the entry of the part to be welded (31), going into the inlet (17) of an automatic supply channel (18); and in that the positioning device (12) has on both sides of the axial opening (13) respective fixing clamps (16) for the part to be welded (31) biased by 20 springs or similar devices; and in that the positioning device (12) has a sensor (21) adjacent to one of its walls to detect the presence of the part (31) to be welded into the correct position on the inside of the axial opening (13).

25 6.- IMPROVED DEVICE FOR WELDING BY RESISTANCE, according to claim 5, is characterised in that the axial opening (13) for the passage has a guide (not shown) for the movement of the rod (6).

7.- IMPROVED DEVICE FOR WELDING BY RESISTANCE,  
according to claims 1 and 5, is characterised in that the  
positioning device (12) is made from a material for  
insulation from the electrical current and is heat  
5 resistant.

8.- IMPROVED DEVICE FOR WELDING BY RESISTANCE,  
according to claims 1 and 5, is characterised in that the  
intermediary coupling part (19) has a housing or opening in  
the column (4) through which it is movable; and in that the  
10 column (4) has an internal blind opening (30) at its free  
end, said opening having on the inside an expansion element  
(25), such as a spring or gas cylinder facing the coupling  
part (19) for its separation; and in that the column (4)  
has, on one side of its contour, a longitudinal groove (26)  
15 of a specific length into which there is a limiting pivot  
slide (27), coming from the intermediary coupling part (19)  
suitable to determine the maximum travel of the movement;  
and in that the intermediary coupling part (19) has a  
moving casing (20) around the column (4).

20 9.- IMPROVED DEVICE FOR WELDING BY RESISTANCE,  
according to claims 1, 5 and 8, is characterised in that  
the intermediary coupling part (19) has a housing for  
supply conduit (18) of the small parts (31) to be welded on  
the inside of the positioning device (12); and in that the  
25 entry (17) of the conduit is facing the side window (15) of  
the axial opening (13) of the positioning device; and in  
that it has a fixing peg (23) for said conduit or similar  
means of fixing.

10.- IMPROVED DEVICE FOR WELDING BY RESISTANCE,  
according to claims 1, 5 and 8, is characterised in that  
the intermediary coupling part (19) has a peg (22) or  
similar means of quick fixing for the positioning device  
5 (12) for its rapid removal.

11.- IMPROVED DEVICE FOR WELDING BY RESISTANCE,  
according to claim 1, is characterised in that the body (1)  
has a coupling or shape of the base body suitable for  
fixing by some quick means, such as by clamps (24), to the  
10 die or die holder or tool onto which the device is fitted;  
and in that said body (1) base has a strengthening sheet  
(2) at its rear in contact with the surface onto which it  
is attached, operationally suitable to take the forces of  
compression during the welding.